CLAIMS

1. An epitaxial silicon wafer including a silicon wafer substrate doped with nitrogen on which an epitaxial film formed, wherein a hill-shaped defect is not observed on the epitaxial film.

2. An epitaxial silicon wafer including a silicon wafer substrate doped with nitrogen on which an epitaxial film formed, wherein the number of crystal defects observed as LPDs of 120 nm or more on the epitaxial film is 20 pieces/200-mm wafer or less.

3. A method of manufacturing a silicon single crystal ingot by Czochralski method, wherein silicon single crystal pulling is performed while nitrogen is being doped in a region where the number of crystal defects observed after epitaxial growth as LPDs of 120 nm or more is 20 pieces/200-mm wafer or less.

4. A method of manufacturing a silicon single crystal ingot by Czochralski method, wherein silicon single crystal pulling is performed in a range of nitrogen concentration and oxygen concentration not exceeding a range wherein the nitrogen concentration is about 3×10^{15} atoms/cm^3 when the oxygen concentration is 7×10^{17} atoms/cm^3 and the nitrogen concentration is about 3×10^{14} atoms/cm^3 when the oxygen concentration is 1.6×10^{18} atoms/cm^3.

5. The method of manufacturing a silicon single crystal ingot by the Czochralski method according to claim 4, wherein the oxygen concentration is lowered corresponding to an in accordance with increase in nitrogen concentration.

6. A nitrogen-doped silicon wafer, wherein nitrogen concentration and oxygen concentration are within a range in which the nitrogen concentration is about 3×10^{15} atoms/cm^3 or less when the oxygen concentration is 7×10^{17} atoms/cm^3 and the nitrogen concentration is about 3×10^{14} atoms/cm^3 or less when the oxygen concentration is 1.6×10^{18} atoms/cm^3.

7. A nitrogen-doped silicon wafer, wherein nitrogen concentration and oxygen concentration are within a range in which the nitrogen concentration is about 1×10^{15} atoms/cm^3 or less when the oxygen concentration is 7×10^{17} atoms/cm^3 and the nitrogen concentration is about 1×10^{14} atoms/cm^3 or less when the oxygen concentration is 1.5×10^{18} atoms/cm^3.

8. A silicon ingot, wherein nitrogen concentration of a terminal end of a straight body section of the silicon ingot is in a range of from 1×10^{15} atoms/cm^3 to 3×10^{15} atoms/cm^3.

9. The silicon ingot according to claim 8, wherein oxygen concentration in the silicon ingot is controlled corresponding to a change in the nitrogen concentration in the silicon ingot.